

**PATENT CLAIMS**

1. Surgical instrument for preparing implant beds in the lower jaw comprising a spinous drilling element (1), and a handle fixed thereto, characterised in that
  - the drilling element (1) comprises a first truncated cone
    - whose outer surface line encloses an angle of at most several degrees with the axis (5) of the truncated cone (3),
    - and whose outer surface line is designed so as to be smooth
  - and the handle is arranged at an angle (8) to the axis (5) of the aforementioned truncated cone (3).
2. Surgical instrument according to claim 1, characterised in that
  - the drilling element (1) comprises at least one further truncated cone
    - which is coaxially contiguous with the first truncated cone (3)
      - the top surface of the further truncated cone
        - facing the base surface of the previous truncated cone
        - and having a larger diameter than the base surface of the preceding truncated cone.
3. Surgical instrument according to claim 1 or 2, characterised in that
  - the first truncated cone (3) is terminated in the region (4) of its top surface by a surface (6) which is rotationally symmetrical with respect to the cone axis,
    - and which is either designed so as to be concave and forms a comparatively sharp cutting edge with the circumferential surface of the truncated cone,
    - or is designed so as to be convex.

4. Surgical instrument according to one of claims 1-3, characterised in that

- the angle (8) between the handle and axis (5) of the first truncated cone (3) is
- either approx. 70 degrees
- or approx. 80 degrees
- or approx. 90 degrees
- or approx. 100 degrees.

5. Surgical instrument according to one of claims 1-4, characterised in that

- the angle (8) between the handle and axis (5) of the first truncated cone (3) is adjustable.

6. Surgical instrument according to one of claims 1-5, characterised in that

- the said handle is detachably fixed to the said drilling element (1).

7. Surgical instruments according to one of claims 1-6, characterised in that

- in the case of instruments
  - in which the aforementioned angle (8) is adjustable, a set of preferably 5 instruments is provided, or
  - in which the said angles (8) are fixed, a set of preferably 5 instruments being provided for each predetermined angle (8)
  - the instruments of a set forming a sequence with graded diameters of corresponding truncated cones
  - and the respective succeeding instrument in this series having a top surface diameter of the first truncated cone, which is smaller than/equal to the base surface diameter of the last truncated cone of the respective preceding instrument in this series.

8. Surgical instrument according to one of claims 1-7, characterised in that

- marks (7) are produced on the circumferential surfaces of the truncated cones
- which indicate the distances to that end (4) of the instrument that lies in the region of the top surface of the first truncated cone.

9. Method for bone-conserving production of an implant bed in the lower jaw, using spiral drills with internal cooling and at least one surgical instrument according to one of the preceding claims, characterised by the following process steps

- a) determination of the direction and depth of the implantation with a pilot borehole by means of a first spiral drill
- b) boring the corticalis (overlying bones) to a diameter required for carrying out the succeeding or a plurality of succeeding operations by means of a further spiral drill of larger
- c) widening the opening present in the spongiosa (filling bones) by means of the aforementioned surgical instrument
- d) repetition of steps b) and c), if required, using an instrument whose first truncated cone, however, has a larger diameter than the instrument used previously

10. Method for bone-conserving production of an implant bed in the lower jaw, according to claim 8, characterised in that

- before operation c) or before a repeated operation according to c), a vertical osteotomy is carried out distally or mesially upwards.

11. Method for bone-conserving production of an implant bed in the lower jaw according to claim 8 or 9, characterised in that,

- in the case of an implantation in the region
  - of the molars, position 6 or 7, an instrument with a handle angled through 70 degrees
  - of the premolars an instrument with a handle angled through 80 degrees
  - of the anterior teeth or the incisors an instrument with a handle angled through 90 degrees

is used.